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Women's position in intra organizational informal relationship networks: an application of network analysis approach

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Abstract

In recent years, one of the issues considered by scientists is the relationship between gender and informal relationship networks in workplaces. Optimize utilization of social networks to achieve better job position in a higher organizational level is in great importance for both men and women. Social supporting and interaction networks play important roles in a workplace including improving performance and decreasing stress as well as fatigue of workers. Hence it has been a subject to be researched.

Network analysis is a new approach of studying social structures that investigates how surrounding structures of people, groups or organizations affect them and one of its most important features is changing the focus from people and their characteristics to their relationships. This paper using network analysis approach draws the informal relationship network of 153 male and female workers of Peyvand industrial company to answer 2 following questions:

Are women engaged in informal relationship networks in workplaces with masculine job nature as well as men and are they put in proper position?

2- Is the job nature effective in forming informal relationships among men and women?

Data are analyzed using UCINET and depicted by Netdraw Software and discussed in the conclusion.

Keywords: female workers; network analysis; informal relationships; Centrality measures.

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1. Introduction

In recent years, one of the issues considered by scientists is the relation between gender and informal relationship networks in workplaces. Informal structures are networks of personal and social relations which formed out of organizational hierarchy spontaneously while people interact with each other.

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Central focus of the social networks perspective is how these structures enhance or limit access to valued resources, e.g. career success [1, 2, 3, 4, 5]. According to some authors, gender differences in the use of social networks in organizations is one of the main reasons why women earn less, get promoted less and do not have access to as many resources as their male colleagues [6,7]. For example, Cannings and Montmarquette [8] showed that greater success of men in gaining promotions and benefiting the career outcomes has been just because of their more effective use of informal networks. Social networks are important to both men and women's advancement to hierarchical levels [9, 10].

On the other hand McGuire [11,12] believes that social networks are not necessarily a shortcut to power in an organization, since intra-organizational social networks can have the somewhat paradoxical effect of maintaining and strengthening the formal structures. Lyness and Thompson [13] emphasized on the separation of women from informal networks because of the glass ceiling rule. Forret and Dougherty [14] found few differences among men and women in terms of the level of involvement in informal networks. Van Emmerik, Euwema, Geschiere, and Schouten [15] examined gender differences in the association of networking with career satisfaction and they found out that the female employees in their study engaged more in networking, but they benefited less from it in terms of career satisfaction and were less able to create "soft social capital" than their male colleagues, as was previously assumed.

As a result, there is a clear sex segregation in organizations [16] and we still don't exactly know which differences – if any – exist between male and female social relationships regarding their development and use of job related social networks. So in this paper we investigate and analyze women's positions in intra organizational informal relationship networks and its relationship with job nature using network analysis approach to answer three following questions:

Are women engaged in informal relationship networks in workplaces with masculine job nature as well as men?

Do women have a proper position in such workplaces?

Is job nature important in forming informal relationships among males and females?

2. Basic concepts of network analysis approach

Network Analysis is a new approach to solve social, managerial, political problems and etc. Three reasons have led to success of Network Analysis as a paradigm and an empirical tool. First, concepts were based on relations rather than attributes. By concentration on their attention to the ties between social entities, rather than to the quantities possessed by them, they force social scientists to think in terms of constraints and options that are inherent in the way social relations are organized. Network Analysis is therefore based on anti-categorical imperative, which rejects all attempts to explain human behavior or social processes solely in terms of categorical attributes of actors, whether individual or collective.

Two basic components of Network Analysis are a set of objects (called nodes, positions, or actors) and a set of relations among these objects (called edges, ties, or links) [17]. Network Analysis is not a neutral statistical method, nor is it a theory. It is an empirical tool to describe social structure on the basis of relations between social entities [18]. Based on this toolbox, the principal achievement of Network Analysis has been to transform a merely metaphorical understanding of the embeddedness of actors in networks of social relationships into a more precise and usable tool for social analysis [19]. Two important concepts used in the analysis are as follows:

Degree Centrality

Betweenness centrality

Degree centrality is the number of direct connections a node has. Betweenness centrality defined as the sum of the ratios of shortest paths between other actors that an actor sits on. An actor with high betweenness centrality is between many actors in terms of shortest paths [20, 21, 22,23, 24].

Kerbs [25] investigated the intra organizational formal and informal relationship network of an organization using network analysis approach and concluded that this method was an efficient approach in recognizing key stakeholders making final organizational decisions.

Webster et al [26] examined the degree to which the constraints imposed by various social contexts influence social interaction. They used network analysis approach to find out formal and informal constraint in the intra organizational relationship of managers and workers of a restaurant. The results suggested that the constraints found in any context (formal or informal) were not unlimited in their impact. Moreover, individuals could apparently do manipulate the context to minimize the constraint imposed by the context.

Krackhardt and Hanson [27] examined the intra organizational informal relationship networks using network analysis approach. They investigated the effect of the awareness of these relationship networks on the best utilization of them and improving managerial decisions. They found out that there were different kind of informal relationship networks and some of them are harmful for the manager. So, they concluded that managers shouldn't neglect these kinds of relations.

3. Research methodology

This research is conducted in Peyvand industrial company, which is one of the automotive part producers in our country. This company includes 186 (106 men and 80 women) workers in 4 different departments (Peugeot assembling, chair production, chair rail production, pressing) who more than 1/3 of them are women.

The data was gathered from questionnaire survey. All respondents were asked to write the name of 3 colleagues who they refer when they face a problem in the workplace or even in their personal lives ignoring the position of that colleague in the organizational hierarchy. Totally 153 questionnaires were received back and the data were entered in the UCINET software in the form of a single mood matrix as following:

The colleague with first priority was assigned value 3, the colleague with second priority was assigned value 2 and the colleague with third priority was assigned value 1. Then, degree centrality and betweenness measures as well as the Eigenvector were calculated. After by the intra organizational informal relationship network was drawn. To visualize the analysis, Netdraw software was used.

4. Findings

Figure 1 depicts the intra organizational informal relationship network of men and women in which squares denote women and circles denote men. In this network 28 people (12 women and 16 men) are isolated and are omitted from the figure to decrease congestion.

In this figure there are 3 informal groups (at the top of the fig) which men are not included in and all of them belong to "pressing department". Men also constructed 3 separate relationship groups (at the left side of the fig) which 2 of them belong to the "pressing department" and the other one belongs to the "chair production" department which doesn't include any women. But the main cut point of the network and bridge between the men groups and the biggest part of the network is a woman. It shows that women engage in informal relationship networks in workplaces with masculine job natures as well as men. On the other hand there is little informal relationship among male and female in the "pressing department" because of the hard nature of the jobs in this department. Therefore people can't interact during work and their interaction is limited to the breaks and in religious countries like Iran the rest room and restaurant are not the same for men and women. So there is little informal relationship among them. The most informal relationship can be seen in the "Peugeot assembling department" and it's just because of the simple nature of the work and the worker layout tables in this department that make interaction easier for both men and women.

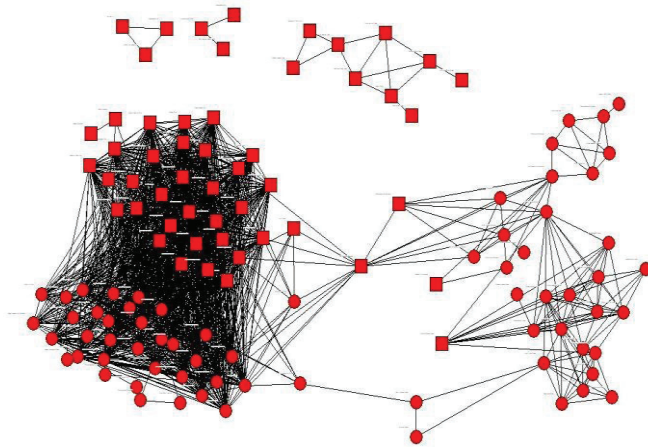


Fig 1. Intra organizational informal relationship network of men and women

Figures 2 and 3 show degree centralities and betweenness measures of the network. The most degree centralities are related to the male and female workers of the “Peugeot assembling department”. The most betweenness measures are to do with a woman. Totally 14 workers are cut-points in the network who 5 of them are women. Cut-points are those points among other people or groups that when get omitted the network gets divided in to some separated parts. So it can be concluded that women are engaged in informal relationships more than men and most of them belong to more than one group and omission of one of them doesn't cause to the demolition of the relations among other people

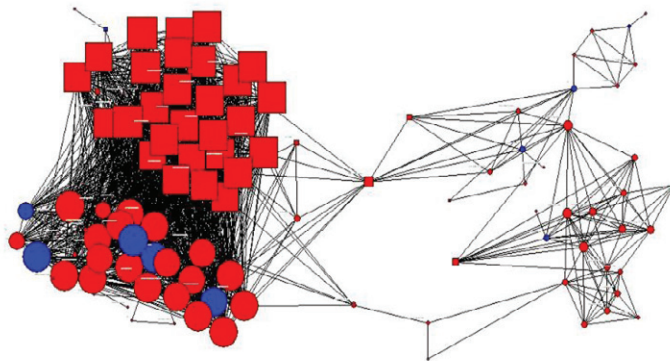


Fig 2. Degree centralities & Cut points (the size of the points is proportional to their degree centralities and the blue points are cut-points)

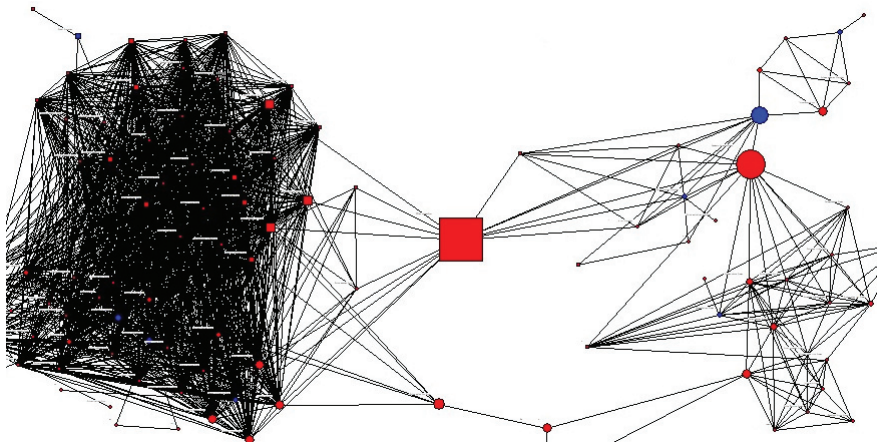


Fig 3. Betweenness measures of the network (the size of the points is proportional to their betweenness measures and the blue points are cut-points).

Table 1 and 2 respectively show the percentage of the relations in terms of “gender” and “working department” to the total number of relations. People with the most degree centralities, betweenness measures and Eigenvector are determined in table 3.

Considering table 1, most of the relationships can be seen among women and then among men and women. on the other hand, the most intra departmental relationships exist in the “PEUGEOT assembling department” and the least in “pressing” and “chair production” departments that are respectively related to the simple and hard nature of the work in these departments. Furthermore, all women with the most centralities and the best position in the informal relationship network occupy in the “PEUGEOT assembling department”. The other important point is that in both degree centrality and Eigenvector, women have the best position (table 3). So it can be said that women are engaged in informal relationships more than men and men are more as mediators in these relationships that it emphasizes on the less informal relationship among men.

Table 1. The percentage of the relations in terms of “gender” and to the total number of relations

the percentage of the number of relationships among men and women to the total number of relations	the percentage of men relationships to the total number of relations	the percentage of women relationships to the total number of relations
31	26	43

Table 2. the percentage of the relations in terms of “gender” and “working department” to the total number of relations

the percentage of intra Tape of the centrality	the percentage of intra the percentage of the women to the total people with the most centrality	the percentage of intra the department of the women with the most centrality	the percentage of intra relationships in “chair production department” to the total number of relations	the percentage of intra relationships in “PEUGEOT assembling department” to the total number of relations
Degree centrality	100	PEUGEOT	7	38
Betweenness centrality	34	PEUGEOT	Table 3. The percentage of the women to the total people with the most centrality and their department	
Eigenvector centrality	100	PEUGEOT		

5. Conclusion

The aim of the paper is investigation and analysis of women positions in intra organizational informal relationship networks and its relationship with job nature using network analysis approach.

Results show that women engage in informal relationship networks in workplaces with masculine job nature as well as men or even more than them. But their engagement type is different and is related to the dominant centrality among men and women. Also job nature, job environment and its degree of difficulty and the way men and women are arranged in workplace depending on the job nature are effective in forming informal relationship among them. Finally it can be said that network analysis as a new approach in solving managerial problems can help managers to determine key people in intra organizational relationship networks and informal networks.

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